

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of Priem et al.

Serial No.: 09/056,656

DEC 30 2003

Examiner: Ulka J. Chauhan

Filed: April 7, 1998

Art Unit: 2671

For: TEXTURE CACHE FOR A COMPUTER GRAPHICS ACCELERATOR



U.S. Patent and Trademark Office  
2011 South Clark Place  
Customer Window  
Crystal Plaza Two, Lobby, Room 1B03  
Arlington, VA 22202

**DECLARATION UNDER 37 CFR § 1.131 BY GOPAL SOLANKI AND DAVID KIRK,  
FOR THEMSELVES AND FOR CO-INVENTOR CURTIS PRIEM, IN SUPPORT  
OF ANTEDATING REFERENCE**

1. We are the inventors of the invention claimed in U.S. Patent Application No. 09/056,656, entitled "Texture Cache for a Computer Graphics Accelerator," filed April 7, 1998 ("the '656 application").
2. The '656 application discloses a graphics accelerator for use with a central processing unit (CPU) and a system bus, wherein the graphics accelerator includes a texture cache system.
3. The disclosed graphics accelerator was developed as part of NVIDIA's NV3 project.
4. The NV3 project produced the RIVA 128 product, which was publicly introduced on April 8, 1997 (see Exhibit A).

5. The RIVA 128 product was shipped to customers prior to December 1, 1997 (the Critical Date).

6. NVIDIA's NV3 Graphics Reference Manual ("the Graphics Manual"), which was available prior to the Critical Date, described the interface to read and write the context of the graphics engine in the RIVA 128 product. Excerpts from the Graphics Manual are attached as Exhibit B.

7. The RIVA 128 product included a texture cache memory that stores texel data to be used by a graphic engine to produce texture values for pixels. This is reflected at pages 54-55 of the Graphics Manual, which refers to the CACHE\_INDEX register that facilitates the writing and reading of the RAMs used in the graphic engine's texture cache, and to the CACHE\_RAM register that facilitates as the data access port for the writing and reading of the RAMs used in the graphic engine's texture cache.

8. The DMA engine of the RIVA 128 product implemented virtual-physical address translation. This is reflected at pages 103-104 of the Graphics Manual, which refers to the TLB\_PTE register that includes the virtual to physical address translation lookaside buffer's page table entry, and to the TLB\_TAG register that includes the virtual to physical address translation lookaside buffer's tag for the page table entry. This is also reflected at page 107 of the Graphics Manual, which refers to the DMA\_START[] value that is used to create the offset value used by the DMA engine to calculate the virtual address of the intended access.



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9. Prior to the Critical Date, the RIVA 128 product was used in a method that processed textures, including: storing a plurality of texture maps in a main memory; transferring a subset of said plurality of texture maps from the main memory to a local memory of a graphics accelerator; accessing texels from the subset of said plurality of texture maps in the local memory; and caching the texels in the graphics accelerator, wherein accessing texels includes reading page table entries in the local memory, the page table entries providing physical addresses related to said plurality of texture maps.

10. The undersigned co-inventors make the statements herein on behalf of themselves and on behalf of non-signing co-inventor Curtis Priem.

11. We hereby declare that all statements made herein of our own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Executed on: \_\_\_\_\_

Gopal Solanki

Executed on: \_\_\_\_\_

David Kirk

Enclosures: Petition for Acceptance of Declaration Notwithstanding Non-Signing Inventor

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Attorney Docket No: NVID001/00US

PATENT

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Executed on: \_\_\_\_\_

Gopal Solanki

Executed on: 12/23/03

David Kirk

Enclosures: Petition for Acceptance of Declaration Notwithstanding Non-Signing Inventor